



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,106	04/16/2008	Johan Hernblom	47113-5028	3028
55694	7590	01/20/2011	EXAMINER	
DRINKER BIDDLE & REATH (DC)			ZIMMERMAN, JOHN J	
1500 K STREET, N.W.				
SUITE 1100			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20005-1209			1784	
			NOTIFICATION DATE	DELIVERY MODE
			01/20/2011	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DBRIPDocket@dbr.com  
penelope.mongelluzzo@dbr.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/567,106	HERNBLOM ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	John J. Zimmerman	1784

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 2/3/2006 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20061027</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____ .                        |

## FIRST OFFICE ACTION

### Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### Specification

2. The substitute specification received February 3, 2006 has been accepted.

### Information Disclosure Statement

3. The information disclosure statement received October 27, 2006 has been considered.

### Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-40 of U.S. Patent No. 7,220,494. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent already extend coverage to a composite product which is resistant to carburization, metal dusting and coking wherein the load bearing member is iron alloy and the corrosion resistant member has a thickness of at least 0.5 mm and is a copper-aluminum alloy (e.g. see claim 1 of the patent). The claims of the patent cover composite tubes (e.g. see patented claim 11) and methods of preventing metal dusting and coking in CO and/or hydrocarbon environments (e.g. see patented method claims 22-40). In addition, the claims of the patent (e.g. claims 9-11) cover metallurgical bonding (e.g. overlay welding). While the claims of the patent may not specify a thickness range for the load carrying member and may not specify the outer diameter of the tube, it would have been obvious to one of ordinary skill in the art to optimize the thickness of the load carrying member to meet the structural requirements and size requirements of a tube for the patent's purpose (e.g. catalytic reforming - claim 25 of the patent).

6. Claims 1-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 7,186,370. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent already extend coverage to a product which is resistant to metal dusting and

coking (e.g. see patented claim 20) and wherein the product is a tube (e.g. patented claim 12) and the product is a composite (e.g. patented claim 11). The corrosion resistant member is a copper-aluminum alloy (e.g. see patented claim 1). Methods of preventing metal dusting and coking in CO and/or hydrocarbon environments are covered (e.g. see patented method 13-20). While the claims of the patent may not specify a thickness range for corrosion resistant member, it would have been obvious to one of ordinary skill in the art to optimize the thickness of the corrosion resistant member to meet the prevention of metal dusting and coking requirements of the tubes (e.g. patented claim 13). While the claims of the patent may not specify a thickness range for load carrying portion of the composite tube or the outer diameter of the tube, it would have been obvious to one of ordinary skill in the art to optimize the thickness of the load carrying portion of the composite tube member and the diameter of the tube to meet the structural requires of tubes in catalytic reforming apparatus (e.g. patented claim 16). Regarding the composition of the load-carrying portion of the tube, the patent describes (e.g. column 6, lines 42-67) what compositions one of ordinary skill in the art would consider to be covered by the composite claims of the patent (e.g. see claim 11).

### **Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szakalos (WO 03/072836).

9. Szakalos '836 discloses copper-aluminum alloys (e.g. see page 7, line 5 - page 9, line 23) which are resistant to carburization, metal dusting and coking in CO-containing atmospheres and/or hydrocarbon containing atmospheres (e.g. see page 5, line 26 - page 6, line 21). Szakalos discloses that these alloys may be used in the form of tubes and pipes (e.g. see page 9, lines 25-28) and may be used in composite or bimetallic composite construction with a load carrier member when used at higher temperatures (e.g. see page 12, lines 16-21). The load carrier member can be iron alloys which have the copper-aluminum alloy deposited on one or both surfaces (e.g. see page 14, lines 8-26). Overlay welding is an example method of applying the alloy (e.g. see page 13, line 29). Szakalos may differ from the claims in that Szakalos may not require specific thickness ranges for the corrosion resistant member and the load carrying member, but it would have been obvious to one of ordinary skill in the art to make the load carrying member thick enough to perform its load carrying function without failure and it would have been obvious to one of ordinary skill in the art to optimize the thickness of the corrosion resistant member to perform its function for the expected lifetime of the equipment.

10. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szakalos (U.S. 2004/0005239 A1).

11. Szakalos '239 discloses copper-aluminum alloys (e.g. see paragraphs [0019]-[0033]) which are resistant to carburization, metal dusting and coking in CO-containing atmospheres and/or hydrocarbon containing atmospheres (e.g. see paragraph [0017]). Szakalos discloses that these alloys may be used in the form of tubes and pipes (e.g. see paragraph [0034]) and may be used in composite or bimetallic composite construction with a load carrier member when used at higher temperatures (e.g. see paragraph [0035]). While Szakalos may not specify what the composition of the load carrying member may be, it is clear from Table 3 that stainless steel is typical in this type of equipment. The examiner also takes Official Notice that stainless steel is a typical load bearing material in petrochemical equipment. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use stainless steel as the load carrier member in the invention of Szakalos. Use of any conventional method (e.g. overlay welding) of applying the copper-aluminum alloy layer would have been obvious to one of ordinary skill in the art. Szakalos may differ from the claims in that Szakalos may not require specific thickness ranges for the corrosion resistant member and the load carrying member, but it would have been obvious to one of ordinary skill in the art to make the load carrying member thick enough to perform its load carrying function without failure and it would have been obvious to one of ordinary skill in the art to optimize the thickness of the corrosion resistant member to perform its function for the expected lifetime of the equipment.

12. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanarayanan (U.S. 2003/0029528 A1).

13. Ramanarayanan discloses copper-aluminum alloys (e.g. see paragraph [0018]) which are resistant to metal dusting in CO-containing atmospheres and/or hydrocarbon containing atmospheres (e.g. see paragraphs [0003]-[0004]). Ramanarayanan may not specifically designate these alloys in the form of tubes and pipes, but Ramanarayanan does disclose that they are to be used in structural components such as reactors and heat exchangers (e.g. see paragraph [0021]) and the examiner takes Official Notice that reactors and heat exchangers typically comprise tubes and pipes. Ramanarayanan discloses that the copper-aluminum alloys can be used to construct the apparatus surfaces or alternatively be used as coatings to protect the underlying substrates (e.g. see paragraphs [0024]). Any technique of applying the copper-aluminum alloy to the underlying substrates may be used (e.g. see paragraph [0025]). While Ramanarayanan may not specify what the composition of the substrate member may be, the examiner takes Official Notice that stainless steel and nickel-based alloys are typical substrate materials in petrochemical equipment. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use stainless steel or nickel-based alloy as the substrate member in the invention of Ramanarayanan. Ramanarayanan may differ from the claims in that Ramanarayanan may not require specific thickness ranges for the load carrying member, but it would have been obvious to one of ordinary skill in the art to make the substrate member thick enough to perform its structural function without failure. Ramanarayanan may differ from the claims in that the suggested copper-aluminum alloy thickness (e.g. see paragraph [0026]) may be lower than the thickness recited in applicant's claims, but it would have been obvious to one of ordinary skill in the art to use thicker corrosion resistant member if it would be economical with the expectation of extending the lifetime of the equipment.

14. Claims 1-7 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. 1,243,894 in view of Brittanica (definition of aluminum-bronze).

15. UK '894 discloses using arc welding to apply aluminum bronze (e.g. see Brittanica: copper alloy containing 4-15% aluminum) to a stainless steel substrates to form bimetallic plates (e.g. page 1, lines 11-19). The plates are fitted with 3/4" bimetallic tubes of the same grade (e.g. see page 2, lines 12-20). UK '894 may differ from the claims in that it may not disclose the thickness of the aluminum bronze layer and the stainless steel layer, but it would have been obvious to one of ordinary skill in the art to adjust the thickness of the corrosion resistant and structural layers of the tubes to mechanical strength and corrosion resistance (e.g. page 1, lines 68-77) needed to meet the specifications of different specific heat exchangers. One of ordinary skill in the art would readily understand that larger heat exchangers and/or heat exchangers in more challenging environments would need thicker members compared to smaller heat exchangers and/or heat exchangers in less challenging environments. It would be obvious and well within the level of ordinary skill in the art to optimize the thickness of the corrosion resistant member and the high mechanical strength member to meet the conditions required for different end uses and environments. There is no factual evidence of patentably distinction for the thickness ranges in the rejected claims over any other thickness ranges that would be typically used in the bimetallic tube art.

### **Conclusion**

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art made of record serves to further establish the level of ordinary skill in the art.
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John J. Zimmerman  
Primary Examiner  
Art Unit 1784

Application/Control Number: 10/567,106  
Art Unit: 1784

Page 10

*/John J. Zimmerman/  
Primary Examiner, Art Unit 1784*

jjz  
January 13, 2011